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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/895,153	07/02/2001	Koon Gee Neoh	1781-0233P	9536

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EXAMINER

TSOY, ELENA

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 02/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/895,153

Applicant(s)

NEOH ET AL.

Examiner

Elena Tsoy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36,39 and 41-58 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 36,39 and 41-52 is/are allowed.
- 6) ☒ Claim(s) 53-58 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 23, 2004 has been entered.

Response to Amendment

2. Amendment filed on December 23, 2004 has been entered. Claims 1-35, 37-38, 40 have been cancelled. New claims 41-58 have been added. Claims 36, 39, 41-58 are pending in the application.

Double Patenting

3. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

4. Applicant is advised that should claims 54 and 55 be found allowable, claims 57 and 58 will be objected to under 37 CFR 1.75 as being a substantial duplicates thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

5. The Examiner's Note: for examining purposes, "a pre-doped composition" of claim 1 was interpreted according to prior art as a composition having up to 50 % of viologen salt.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 53-58** are rejected under 35 U.S.C. 103(a) as being unpatentable over Afzali-Ardakani et al (US 5,776,370) in view of IBM Technical Disclosure Bulletin (1975), further in view of Williams et al (4,414,080).

Afzali-Ardakani et al disclose a method for preparing electrically conductive polymeric material for electrically conductive charge transfer complexes (CTC) comprising contacting polyaniline with an electron acceptor (claimed doping) (See column 2, lines 55-64) such as quinone (See column 3, lines 61-67)). Afzali-Ardakani et al teach that the rate of complexation (doping) is dependent on the electron affinity (reduction potential) of the molecule as well as the polarity of the solvent (See column 4, lines 29-34). The electrically conductive polymeric material may be formed by either depositing polyaniline film on a substrate, then coating the polyaniline on the substrate with the electron acceptor by immersing polyaniline coated substrate into a solution of the electron acceptor in an organic solvent or water (See column 4, lines 26-30) or alternatively by simply mixing polyaniline solution with the solution of the organic electron acceptor and isolating by precipitation in water (See column 4, lines 37-41). In other words, the manner of

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achieving the necessary contact of polyaniline with the electron acceptor is not critical. Therefore, one of ordinary skill in the art at would reasonably assume that even if an order of depositing were reversed, i.e., depositing first the electron acceptor, then depositing the polyaniline layer over the electron acceptor layer, would achieve the same electrically conductive polymeric material because necessary contact between polyaniline and the electron acceptor would be achieved.

Afzali-Ardakani et al fail to teach that an organic electron-acceptor is a viologen salt, and the viologen salt/polyaniline complex becomes conductive when exposed to UV radiation.

IBM Technical Disclosure Bulletin teaches that viologen can be combined with a good donor to form charge-transfer complex where viologen becomes electrochromic at much lower voltages (Approximately 0.2v), or exhibits photovoltage when illuminated with UV radiation (See Abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used viologen (claimed viologen salt) as electron acceptor in Afzali-Ardakani et al to combine with polyaniline (a good donor) to achieve electrically conductive CTC since IBM Technical Disclosure Bulletin teaches that viologen can be combined with a good donor to form charge-transfer complex where viologen becomes electrochromic at much lower voltages (Approximately 0.2v). According to IBM Technical Disclosure Bulletin teaching, polyaniline/viologen complex would also exhibit photovoltage when illuminated with UV radiation.

It is held that the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See also *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960) (selection of a known plastic to make a container of a type made of plastics prior to

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the invention was held to be obvious); *Ryco, Inc. v. Ag-Bag Corp.*, 857 F.2d 1418, 8 USPQ2d 1323 (Fed. Cir. 1988).

Afzali-Ardakani et al in view of IBM Technical Disclosure Bulletin fail to teach that a layer of a viologen salt is deposited on a substrate *in situ* (Claim 53, 56) where viologen salt is viologen dihalide (Claims 55, 58).

Williams et al teach that a layer of viologen can be formed by reaction of 4,4'-bipyridyl at temperatures from about 20°C to 60°C, with an equimolar amount of an organic dihalide (See column 6, lines 36-59) in the presence of the substrate (See column 7, lines 1-2), i.e., can be formed on the substrate *in situ*.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed a layer of viologen salt, e.g. viologen dihalide, on a substrate in Afzali-Ardakani et al in view of IBM Technical Disclosure Bulletin *in situ* since Williams et al teach that a layer of viologen can be formed by reaction of 4,4'-bipyridyl with an equimolar amount of an organic dihalide in the presence of the substrate.

Allowable Subject Matter

8. Claims 36, 39, 41-52 are allowed.

The following is an examiner's statement of reasons for allowance: Claim 39 is allowed because the prior art of the record does not teach or suggest forming a polymeric material *in situ* on viologen coated substrate. Claims 41-51 are allowed as further limiting allowed claim 39.

Claims 36, 52 are allowed because the prior art of the record does not teach or suggest forming a viologen salt on a substrate by providing a vinyl alkyl grafted substrate. Closest prior art of Williams et al teaches forming quaternary pyridinium compounds on a substrate *in situ*, but not by providing a vinyl alkyl grafted substrate.

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9. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

10. Applicant's arguments with respect to claims 53-58 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is (571) 272-1429. The examiner can normally be reached on Mo-Thur. 9:00-7:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy
Examiner
Art Unit 1762

ELENA TSOY
PRIMARY EXAMINER
E. Tsoy

February 1, 2005